

A STUDY OF SEROPREVALENCE & DETERMINANTS OF HIV AND HBsAg AMONG ANTENATAL MOTHERS IN TERTIARY & SECONDARY CARE HOSPITALS AT BAREILLY

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ABSTRACT

Background: HIV and Hepatitis B are devastating diseases causing serious global public health problems and are rampant in this part of the country. Risk of vertical transmission occurs in a large number of cases in the absence of immunoprophylaxis. About 30% of world's population has serological evidence of current or past infection with HBV. Detection of carriers is important in control of infections of this magnitude, failure of which may result in serious complications.

Aims & Objective: To study of seroprevalence & determinants of HIV and HBsAg among antenatal mothers in tertiary & secondary care hospitals at Bareilly.

Material and Methods: The study was conducted at the Department of Pathology & Microbiology, Rohilkhand Medical College and Hospital, Bareilly. All patients attending Antenatal OPD of a Tertiary and secondary care hospitals, over a period of three years were assessed by subjecting them to serological tests for detection of HIV & HBsAg. Data was extensively analyzed and compared.

Results: A total of 30,162 patients attended antenatal OPD during the study period, of which 20,699 were tested for HIV and 20,941 were tested for HBsAg. Of these, 12 (0.058%) were positive for HIV and 37 (0.18%) were positive for HBsAg.

Conclusion: We studied the dynamics of HIV and Hepatitis B Virus transmission among pregnant women and the factors responsible for its spread to help us take plausible interventions to prevent vertical transmission. The seroprevalence of HIV & HBsAg was low, nonetheless posing a major cause of morbidity and mortality. Prevalence of HIV is found to be low, but it cannot actually be determined due to a very high refusal rate.

KEY-WORDS: Seroprevalence; HIV; Hepatitis B Virus; Determinants; Antenatal Mothers

Introduction

HIV and Hepatitis B are devastating diseases causing serious global public health problems and are rampant in this part of the country. Risk of vertical transmission occurs in a large number of cases in the absence of immunoprophylaxis.^[1]

According to National AIDS Control Organisation (NACO) Annual Report 2010-2011 around 2.39 million people in India are living with HIV of which an estimated 39% are females and 3.5% are children.^[2] The average HIV prevalence among women attending Antenatal clinic in India is 0.48%.^[3] About 30% of world's population has serological evidence of current or past infection with HBV.^[4-6] The prevalence of HBsAg among general population in India ranges from 2% to 8%, placing India in an intermediate HBV endemicity zone. The number of carriers is estimated to be 50

million.^[7] 10-20% of women seropositive for HBsAg transmit the virus to their neonates in the absence of immunoprophylaxis.^[8] Vertical transmission of these infections is largely preventable. Detection of these carriers is important in control of infections of this magnitude, failure of which may result in serious complications like infertility, foetal wastage, ectopic pregnancy, anogenital cancer and premature death, as well as neonatal and infantile infections.^[9]

Therefore, we attempt to study the prevalence and determinants of these infections to help us take a more comprehensive approach towards prevention of mother to child transmission.

Materials and Methods

Site of the Study: This study was carried out in the Department of Pathology & Microbiology,

Rohilkhand Medical College & Hospital, Bareilly after an approval from Institutional Ethics Committee (IEC).

Unit of the Study: A retrospective study of all patients attending antenatal OPD of tertiary and secondary care hospitals, over a period of three years from January 2009 to December 2011. An elaborate schedule was prepared before undertaking the study and data was extensively analyzed and compared with that of previous similar studies

Sample Size: Data of 30,162 patients was analyzed in this study.

Data Collection: The study was conducted in the Department of Pathology & Microbiology, Rohilkhand Medical College & Hospital, Bareilly. In this retrospective study, data of 30,162 Antenatal mothers, over a period of three years from January 2009 to December 2011 was analyzed. The test for detecting Hepatitis B virus infection and Human Immunodeficiency Virus involved ELISA based assay of Hepatitis B surface antigen and anti-HIV antibodies in blood respectively. After taking informed consent from all patients, sera were checked for the presence of anti-HIV antibodies using ELISA by MICROLISA-HIV (J. Mitra & Co. Pvt. Ltd., New Delhi, India) according to manufacturer's instructions. Sensitivity of this method is 100% and specificity is 99.5% according to manufacturer's manual. Sera were checked for the presence of Hepatitis B surface antigen (HBsAg) using ELISA by HEPALISA (J. Mitra & Co. Pvt. Ltd., New Delhi, India) according to manufacturer's instructions. Sensitivity of this method is 100% and specificity is 100% according to manufacturer's manual.

The results were tabulated according to the aims & objectives of the study and valid inferences were drawn.

Results

In the year 2009, a total of 9,811 patients attended antenatal OPD, out of which 7,026 registered with Integrated Counselling and Testing Centre (ICTC) for pre-test counselling and only 4,514 patients were tested (refusal rate 53.99%). The statistics

improve over the next year where, out of 9,943 patients 8,187 got tested (refusal rate 17.25%). A fall is observed in the year 2011 where, out of 10,338 cases 7,998 got tested (refusal rate 22.63%). Thus, a total of 30,162 patients attended Antenatal OPD during the study period out of which 25,336 registered with ICTC for pre-test counselling and only 20,699 got tested giving us an overall refusal rate of 31.37%.

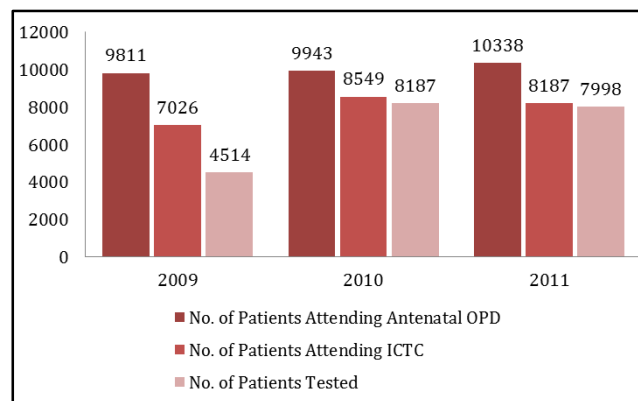


Figure-1: Patients Visit to Health Care Centres

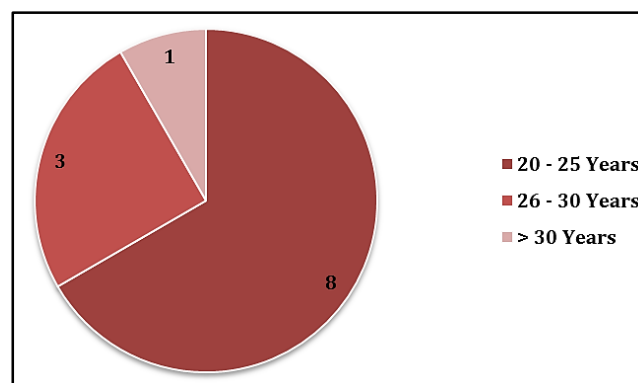


Figure-2: Distribution of the HIV Positive Patients according to Age

The seroprevalence of HIV in this retrospective study was found to be 0.058%, i.e. 12 out of 20,699 patients tested were seropositive for HIV. The maximum numbers of positive cases were reported in 2009 i.e. 5 out of 4,514 cases (0.11%) followed by 2011, 6 out of 7,998 cases (0.075%) and 2010, 1 out of 8,187 cases (0.012%).

A total of 30,162 patients attended antenatal OPD during the study period, of which 20,699 were tested for HIV and 20,941 were tested for HBsAg. A high refusal rate for HIV testing was seen (31.37%). Of the numbers tested for HIV, 12 (0.058%) were positive. Maximum number of positive patients was in the age group of 20-25 years (66.67%). Majority of patients were Hindus (58.33%), followed by Muslims (33.34%). 3 out of

12 HIV positive patients had suggestive history of identifiable risk factors. Out of 20,941 patients tested for HBsAg, 37 were positive (0.18%). Maximum positive cases were in the age group of 20-25 years (45.95%). The carrier rate for HBsAg was found to be 2.7%.

Discussion

Our study showed that the prevalence of HIV among antenatal mothers was 0.058% which was low as compared to studies from other parts of the country. Ashtagi GS et al observed HIV prevalence in Belgaum to be 0.70% in 2007.^[5] According to Chaudhuri Snehamay et al and Gupta Swati et al HIV seroprevalence in Kolkata and New Delhi was 0.16% and 0.88% respectively.^[10,11] However, seroprevalence of HIV in Nigeria was observed to be quite high (4.1%).^[9]

A large gap between the number of patients attending the OPD and the number of patients actually tested was seen. Only 68.62% patients were tested indicating a high refusal rate (31.37%). This may be due to social stigma associated with the disease, lack of knowledge and people from high risk groups refraining from getting tested. The statistics are better as compared to Belgaum and Gujarat where, according to study, the patients tested for HIV were 34.44% and 60.13% respectively.^[5,12] The reason for this could be the growing awareness over the years and better government policies regarding testing for HIV, thus reducing the refusal rate.

The maximum number of HIV seropositive patients was in the age group of 20-25 years which correlated with other studies carried out in New Delhi by Gupta Swati et al and in Nagpur by Ukey Pawan et al.^[11,14] Therefore, we must target this age group and counsel them extensively so as to minimize vertical transmission. The study revealed that the maximum number of seropositive cases belonged to Hindu religion followed by Muslims which correlated with a study carried out in Kolkata in 2007 by Chaudhuri Snehamay et al.^[10] This could be due to the fact that maximum cases attending the OPD in our study group are Hindus. The fact must therefore be considered before making any remark on the

prevalence of infection among specific religions.

The seroprevalence of HBsAg was found to be 0.18% which was low as compared to similar studies done earlier. However, not many studies have been done in India regarding seroprevalence of HBsAg among antenatal mothers. A study in Netherlands by Op de Coul EL et al showed seroprevalence of HBsAg to be 0.33%^[15], while in Nigeria, it was shown to be 8.3% by Ahizechukwu C Eke et al.^[16] The maximum number of seropositive cases was in the age group 20-25 years which correlated with a study carried out in Nigeria by Ahizechukwu C Eke et al.^[16] Another study in Nigeria by Buseri FI et al showed maximum prevalence in the age group of 25-29 years.^[9]

The carrier rate for HBsAg was found to be 2.7% in our study, which was less than that observed in New Delhi, by Tyagi P et al (3.7%).^[6] A plausible reason could be more awareness and better screening in New Delhi which does not limit the number of patients getting screened thus, making it easier to detect carriers.

Conclusion

We studied the dynamics of HIV and Hepatitis B Virus transmission among pregnant women and the factors responsible for its spread to help us take plausible interventions to prevent vertical transmission.

A high refusal rate for HIV testing was observed, which may be due to the social stigma associated with the disease. Therefore, it is difficult to determine the exact prevalence of the disease. Efforts should be made to reduce this refusal rate and achieve 100% testing. Mass education and awareness programs should be organized in the form of posters, street shows, media etc. Also people from high-risk groups should be targeted to minimize the spread of infection.

Another interesting fact highlighted from our study was the high carrier rate for HBsAg, thus, requiring stringent screening measures to detect such carriers and take appropriate measures to prevent vertical transmission.

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